



PROTECTING ARIZONA'S  
WATER SUPPLIES  
for ITS NEXT CENTURY

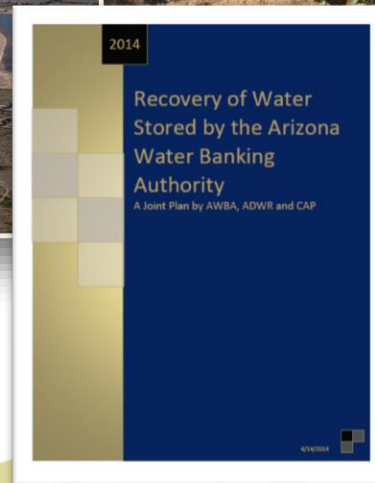


Banking Water Now  
for Arizona's Future



YOUR WATER. YOUR FUTURE.

# Recovery Planning Advisory Group (RPAG)



5th Meeting, August 28, 2018

# Matrix Revisions

Recovery Planning Advisory Group (RPAG) Matrix - DEBET 7/30/18

ID	Method Category	Short Name of Credit Distribution or Recovery Method	How will non-CAP water be discharged into CAP System?	In what ways will CAP water be redirected?	How will additional pumping from wells happen?	How is water quality affected?	What are the capital costs relative to high, medium, low?	What are the O&M costs relative to high, medium, low?	Who owns and/or operates the well?	What kind of additional water losses might occur beyond normal operation?	Will method impact the local aquifer (hydrologic impacts)?	How do you avoid a stranded asset?	What regulatory changes will be required to implement?	What kind of administrative infrastructure (e.g. permits and agreements) is required up front?	To what degree does this method recover outside the area of impact?	What is the legal character of the firming water?	How is this method transferable to others?	Maximum annual volume of firming?	Quick Issues
1	Self-Firming	Self-Firming (AWBA Credits)	No water will be discharged into the CAP system	No CAP water will be redirected	Pumping could increase if customers chose to pump recovered water from their own wells in place of a CAP direct delivery	Quality of CAP water is not affected	Varies - dependent on infrastructure rehabilitation	Varies - dependent on infrastructure O&M	CAP customer who is self firming	Nominal	Potentially if new pumping is occurring	No CAP recovery assets will be used	None	Recovery Well Permit modification may be needed	Depends on CAP customer location relative to AWBA credit location	Legal character of the AWBA credit being recovered	Applicable to any well owners or lessees		Looks like proposal 19
2	Credit Exchange	Credit Exchange Recovery- ADWR/AWBA/CAP	No water will be discharged into the CAP system	CAP water is delivered to a different TO	No additional pumping would occur	Quality of CAP water is not affected	Varies - dependent on infrastructure rehabilitation	Varies - dependent on infrastructure O&M	CAP customer who is recovering on behalf of CAP	Nominal	No additional pumping	No CAP recovery assets will be used	None	Recovery Exchange Agreement, Recovery Well Permit(s) held by CAP, Notice of Exchange, Reclamation approval	Depends on CAP customer location relative to AWBA credit location	Legal character of the water that was given in the exchange	Applicable to entities that rely on direct delivery of CAP water		having recovery wells inside a service permitted to CAP
3	Indirect Recovery	Indirect Recovery- ADWR/AWBA/CAP	No water will be discharged into the CAP system	No CAP water will be redirected	Recovered water delivered via non CAP infrastructure	Quality of CAP water is not affected	Varies - dependent on infrastructure rehabilitation	Varies - dependent on infrastructure O&M	CAP recovery partner who is recovering on behalf of CAP	Nominal	Potentially if new pumping is occurring	No CAP recovery assets will be used	None	Recovery Partnership Agreement, Recovery Well Permit(s), Reclamation approval	Depends on CAP customer location relative to AWBA credit location	Legal character of the AWBA credit being recovered	Applicable to entities that have access to advantageous non-CAP infrastructure		Can you get a general reclamation approval to ease administration
4	Direct Recovery	Direct Recovery- ADWR/AWBA/CAP	Recovered water is discharged into the CAP system at a specific location	No CAP water will be redirected	New or leased wells be used	Recovered water may have to be treated	Varies - dependent on infrastructure rehabilitation	Varies - dependent on infrastructure O&M	CAWCD through ownership or lease agreement	Nominal	Likely	Multiple use infrastructure	None	NOI, Recovery Well Permits	Depends on the location of the recovery well relative to AWBA credit location	Legal character of the AWBA credit being recovered	Applicable to entities that rely on direct delivery of CAP water		CAP related costs in this case
5	Alternative Method	Tucson Water - Leverage LTSC (Long term Storage Credit) Accrual	No water will be discharged into the CAP system	CAP water scheduled for delivery to Tucson would instead be delivered elsewhere	Tucson Water's pumping regime would not change	Quality of CAP water is not affected	High - capital costs already invested by the City of Tucson - Tucson can be incentivized to not take full allocation	Medium - O&M costs already being incurred by City of Tucson	CAP customer who is self firming - in this case Tucson Water	None	Local aquifer will be impacted by the fact that less recharge is occurring while deliveries to Tucson Water customers remain the same	No CAP recovery assets will be used	None	Agreement to incentivize foregoing CAP deliveries during shortage	None	Credits are already Tucson Water credits - method preserves AWBA credits	Applicable to any entity willing to forego CAP deliveries during shortage		Impact on priorities; like AMWUA #20
	Direct Recovery	Tucson Water - Lower Santa Cruz Recovery using CAP Canal	Recovered water is discharged into the CAP system at a specific location	No CAP water will be redirected	New or leased wells will be used	Recovered water may have to be treated	Varies - dependent on infrastructure rehabilitation	Varies - dependent on infrastructure O&M	Local Entity	Nominal	Likely	Multiple use infrastructure	None	NOI, Recovery Well Permits	Depends on the location of the recovery well relative to AWBA credit location	Legal character of the AWBA credit being recovered	Applicable to any entities downstream from point of recovery and addition to canal		Similar to direct delivery specific to southern AZ

# Matrix Revisions

Recovery Planning Advisory Group (RPAG) Matrix - DEAF 7/30/18

ID	Method Category	Short Name of Credit Distribution or Recovery Method	How will non-CAP water be discharged into CAP System?	In what ways will CAP water be redirected?	How will additional pumping from wells happen?	How is water quality affected?	What are the capital costs relative to high, medium, low?	What are the O&M costs relative to high, medium, low?	Who owns and/or operates the well?	What kind of additional water losses might occur beyond normal operation?	Will method impact the local aquifer (hydrologic impacts)?	How do you avoid a stranded asset?	What regulatory changes will be required to implement?	What kind of administrative infrastructure (e.g. permits and agreements) is required up front?	To what degree does this method recover outside the area of impact?	What is the legal character of the firming water?	How is this method transferable to others?	Maximum annual volume of firming?	Quick Issues
1	Self-Firming	Self-Firming (AWBA Credits)	No water will be discharged into the CAP system	No CAP water will be redirected	Pumping could increase if customers chose to pump recovered water from their own wells in place of a CAP direct delivery	Quality of CAP water is not affected	Varies - dependent on infrastructure rehabilitation	Varies - dependent on infrastructure O&M	CAP customer who is self firming	Nominal	Potentially if new pumping is occurring	No CAP recovery assets will be used	None	Recovery Well Permit modification may be needed	Depends on CAP customer location relative to AWBA credit location	Legal character of the AWBA credit being recovered	Applicable to any well owners or lessees		Looks like proposal 19
9	Self-Firming	Tucson Water - USF Credit Distributions for Non-Wheeling Partners	Recovered water is used by the recovery entity in lieu of CAP direct deliveries	Recovery entity foregoes direct CAP deliveries	Existing wells will be used	No change	Already expended	Already Expended	Local Entity	Nominal	Likely	Multiple use infrastructure	None	NOI, Recovery Well Permits	Depends on the location of the recovery well relative to AWBA credit location	Legal character of the AWBA credit being recovered	Applicable to any entities with CAP allocation		Recovery of costs already expended; allocation of partial costs of existing capital vs new capital; priority issue on CAP water
10	Self-Firming	Tucson Water - AWBA Credit transfer pumped by Tucson Water	Recovered water is used by the recovery entity in lieu of CAP direct deliveries	Recovery entity foregoes direct CAP deliveries	Existing wells will be used	No change	Already expended	Already Expended	Local Entity	Nominal	Likely	Multiple use infrastructure	None	NOI, Recovery Well Permits	Depends on the location of the recovery well relative to AWBA credit location	Legal character of the AWBA credit being recovered	Applicable to any entities with CAP allocation		Recovery of costs already expended; already in existing wheeling agreements; allocation of partial costs of existing capital vs new capital.
17	Self-Firming	SAWUA - GSF Self-Firming	No water will be discharged into the CAP canal.	NA	Existing well and transmission infrastructure	Recovered water has already undergone treatment by SAT during recharge. No additional impacts expected.	NA	NA	M&I subcontractor	None	Minimal due to recovery within area of hydrologic impact.	Recovery within area of hydrologic impact.	None	Existing Recovery Permits	None				Note: Primarily 1 and 3 with the indirect component being wheeling
18	Self-Firming	SAWUA - USF Self-Firming	No Water will be discharged to the CAP Canal	NA	Existing well and transmission infrastructure	Recovered water has already undergone treatment by SAT during recharge. No additional impacts expected.	NA	NA	M&I subcontractor	None	Minimal due to recovery within area of hydrologic impact.	Recovery within area of hydrologic impact.	None	Existing Recovery Permits and Recovery Exchange Agreement for Inter-AMA firming, none for local recovery.	None				Note: Primarily 1 and 3 with the indirect component being wheeling
19	Self-Firming	City of Mesa - Direct Credit Distribution/Self-Firming	No water will be discharged into the CAP system	No CAP water will be redirected	Recovered water delivered via non CAP infrastructure	Quality of CAP water is not affected	Low	Low	Recovering subcontractor	None	Yes	No new assets to strand	Statutory change allowing AWBA to directly distribute LTCs for M&I firming	Recovery Well Permit	Depends on the location of the recovery well relative to AWBA credit location	Legal character of the AWBA credit being recovered	Can be used by any subcontractor with adequate well capacity		

# Matrix Revisions

ID	Method Category	Short Name of Credit Distribution or Recovery Method	Operational How will non-CAP water be discharged into CAP System?	Operational In what ways will CAP water be redirected?	Operational Who owns and/or operates the well?	Operational Maximum annual volume of firming?	Hydrology How is water quality affected?	Hydrology Will method impact the local aquifer (hydrologic impacts)?	Hydrology How will additional pumping from wells happen?	Hydrology To what degree does this method recover outside the area of impact?	Regulatory What regulatory changes will be required to implement?	Regulatory What kind of administrative infrastructure (e.g. permits and agreements) is required up front?	Regulatory What is the legal character of the firming water?	Cost What are the capital costs relative to high, medium, low?	Cost What are the O&M costs relative to high, medium, low?	Cost How do you avoid a stranded asset?	Other What kind of additional water losses might occur beyond normal operation?	Other How is this method transferable to others?	Quick Issues
1	Self-Firming	Self-Firming (AWBA Credits)	No water will be discharged into the CAP system	No CAP water will be redirected	CAP customer who is self firming		Quality of CAP water is not affected	Potentially if new pumping is occurring	Pumping could increase if customers chose to pump recovered water from their own wells in place of a CAP direct delivery	Depends on CAP customer location relative to AWBA credit location	None	Recovery Well Permit modification may be needed	Legal character of the AWBA credit being recovered	Varies - dependent on infrastructure rehabilitation	Varies - dependent on infrastructure O&M	No CAP recovery assets will be used	Nominal	Applicable to any well owners or lessees	Looks like proposal 19
9	Self-Firming	Tucson Water - USF Credit Distributions for Non-Wheeling Partners	Recovered water is used by the recovery entity in lieu of CAP direct deliveries	Recovery entity foregoes direct CAP deliveries	Local Entity		No change	Likely	Existing wells will be used	Depends on the location of the recovery well relative to AWBA credit location	None	NOI, Recovery Well Permits	Legal character of the AWBA credit being recovered	Already expended	Already Expended	Multiple use infrastructure	Nominal	Applicable to any entities with CAP allocation	Recovery of costs already expended; allocation of partial costs of existing capital vs new capital; priority issue on CAP water
10	Self-Firming	Tucson Water - AWBA Credit transfer pumped by Tucson Water	Recovered water is used by the recovery entity in lieu of CAP direct deliveries	Recovery entity foregoes direct CAP deliveries	Local Entity		No change	Likely	Existing wells will be used	Depends on the location of the recovery well relative to AWBA credit location	None	NOI, Recovery Well Permits	Legal character of the AWBA credit being recovered	Already expended	Already Expended	Multiple use infrastructure	Nominal	Applicable to any entities with CAP allocation	Recovery of costs already expended; already in existing wheeling agreements; allocation of partial costs of existing capital vs new capital.
17	Self-Firming	SAWUA - GSF Self-Firming	No water will be discharged into the CAP canal.	NA	M&I subcontractor		Recovered water has already undergone treatment by SAT during recharge. No additional impacts expected.	Minimal due to recovery within area of hydrologic impact.	Existing well and transmission infrastructure	None	None	Existing Recovery Permits		NA	NA	Recovery within area of hydrologic impact.	None		Note: Primarily 1 and 3 with the indirect component being wheeling
18	Self-Firming	SAWUA - USF Self-Firming	No Water will be discharged to the CAP Canal	NA	M&I subcontractor		Recovered water has already undergone treatment by SAT during recharge. No additional impacts expected.	Minimal due to recovery within area of hydrologic impact.	Existing well and transmission infrastructure	None	None	Existing Recovery Permits and Recovery Exchange Agreement for inter-AMA firming, none for local recovery.		NA	NA	Recovery within area of hydrologic impact.	None		Note: Primarily 1 and 3 with the indirect component being wheeling
19	Self-Firming	City of Mesa - Direct Credit Distribution/Self-Firming	No water will be discharged into the CAP system.	No CAP water will be redirected	Recovering subcontractor		Quality of CAP water is not affected	Yes	Recovered water delivered via non-CAP infrastructure	Depends on the location of the recovery well relative to AWBA credit location	Statutory change allowing AWBA to directly distribute TSCs for M&I firming	Recovery Well Permit	Legal character of the AWBA credit being recovered	Low	Low	No new assets to strand	None	Can be used by any subcontractor with adequate well capacity	

# Matrix Revisions

Recovery Planning Advisory Group (RPAG) Matrix - DRAFT 7/30/21

			Operational	Operational	Operational	Operational	Hydrology	Hydrology	Hydrology	Regulatory	Regulatory	Regulatory	Cost	Cost	Cost	Other	Hydrology	Other	
ID	Method Category	Short Name of Credit Distribution or Recovery Method	How will non-CAP water be discharged into CAP System?	In what ways will CAP water be redirected?	Who owns and/or operates the well?	Maximum annual volume of firming?	How is water quality affected?	How will additional pumping from wells happen?	To what degree does this method recover outside the area of impact?	What regulatory changes will be required to implement?	What kind of administrative infrastructure (e.g. permits and agreements) is required up front?	What is the legal character of the firming water?	What are the capital costs relative to high, medium low?	What are the O&M costs relative to high, medium, low?	How do you avoid a stranded asset?	How is this method transferable to others?	Will method impact the local aquifer (hydrologic impacts)?	What kind of additional water losses might occur beyond normal operation?	Quick Issues
1	Self-Firming	Self-Firming (AWBA Credits)	No water will be discharged into the CAP system	No CAP water will be redirected	CAP customer who is self firming		Quality of CAP water is not affected	Pumping could increase if customers chose to pump recovered water from their own wells in place of a CAP direct delivery	Depends on CAP customer location relative to AWBA credit location	None	Recovery Well Permit modification may be needed	Legal character of the AWBA credit being recovered	Varies -dependent on infrastructure rehabilitation	Varies - dependent on infrastructure O&M	No CAP recovery assets will be used	Applicable to any well owners or lessors	Potentially if new pumping is occurring	Nominal	Looks like proposal 19
9	Self-Firming	Tucson Water - USF Credit: Distributions for Non-Wheeling Partners	Recovered water is used by the recovery entity in lieu of CAP direct deliveries	Recovery entity foregoes direct CAP deliveries	Local Entity		No change	Existing wells will be used	Depends on the location of the recovery well relative to AWBA credit location	None	NOI, Recovery Well Permits	Legal character of the AWBA credit being recovered	Already expended	Already Expended	Multiple use infrastructure	Applicable to any entities with CAP allocation	Likely	Nominal	Recovery of costs already expended; allocation of partial costs of existing capital vs new capital; priority issue on CAP water
10	Self-Firming	Tucson Water - AWBA Credit transfer pumped by Tucson Water	Recovered water is used by the recovery entity in lieu of CAP direct deliveries	Recovery entity foregoes direct CAP deliveries	Local Entity		No change	Existing wells will be used	Depends on the location of the recovery well relative to AWBA credit location	None	NOI, Recovery Well Permits	Legal character of the AWBA credit being recovered	Already expended	Already Expended	Multiple use infrastructure	Applicable to any entities with CAP allocation	Likely	Nominal	Recovery of costs already expended; already in existing wheeling agreements; allocation of partial costs of existing capital vs new capital.
17	Self-Firming	SAWUA - GSF Self-Firming	No water will be discharged into the CAP canal.	NA	M&I subcontractor		Recovered water has already undergone treatment by SAT during recharge. No additional impacts expected.	Existing well and transmission infrastructure	None	None	Existing Recovery Permits		NA	NA	Recovery within area of hydrologic impact.		Minimal due to recovery within area of hydrologic impact.	None	Note: Primarily 1 and 3 with the indirect component being wheeling
18	Self-Firming	SAWUA - USF Self-Firming	No Water will be discharged into the CAP Canal	NA	M&I subcontractor		Recovered water has already undergone treatment by SAT during recharge. No additional impacts expected.	Existing well and transmission infrastructure	None	None	Existing Recovery Permits and Recovery Exchange Agreement for inter-AMA firming, none for local recovery.		NA	NA	Recovery within area of hydrologic impact.		Minimal due to recovery within area of hydrologic impact.	None	Note: Primarily 1 and 3 with the indirect component being wheeling
19	Self-Firming	City of Mesa - Direct Credit Distribution/Self-Firming	No water will be discharged into the CAP system	No CAP water will be redirected	Recovering subcontractor		Quality of CAP water is not affected	Recovered water delivered via non-CAP infrastructure	Depends on the location of the recovery well relative to AWBA credit location	Statutory change allowing AWBA to directly distribute LTSCs for M&I firming	Recovery Well Permit	Legal character of the AWBA credit being recovered	Low	Low	No new assets to strand	Can be used by any subcontractor with adequate well capacity	Yes	None	

# Matrix Revisions

ID	Method Category	Short Name of Credit Distribution or Recovery Method	Operational				Hydrology		Regulatory		Cost		Other	Hydrology	Other	Quick Issues			
			How will non-CAP water be discharged into CAP System?	In what ways will CAP water be redirected?	Who owns and/or operates the well?	Maximum annual volume of firming?	How is water quality affected?	How will additional pumping from wells happen?	To what degree does this method recover outside the area of impact?	What regulatory changes will be required to implement?	What kind of administrative infrastructure (e.g. permits and agreements) is required up front?	What is the legal character of the firming water?	What are the capital costs relative to low, medium low?	What are the O&M costs relative to high, medium, low?	How do you avoid a stranded asset?		How is this method transferable to others?	Will method impact the local aquifer (hydrologic impacts)?	What kind of additional water losses might occur beyond normal operation?
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18	Self-Firming	SAWUA - USF Self-Firming	No Water will be discharged to the CAP Canal	NA	M&I subcontractor		Recovered water has already undergone treatment by SAT during recharge. No additional impacts expected.	Existing well and transmission infrastructure	None	None	Existing Recovery Permits and Recovery Exchange Agreement for inter-AMA firming, none for local recovery.		NA	NA	Recovery within area of hydrologic impact.		Minimal due to recovery within area of hydrologic impact.	None	Note: Primarily 1 and 3 with the indirect component being wheeling
19	Self-Firming	City of Mesa - Direct Credit Distribution/Self-Firming	No water will be discharged into the CAP system	No CAP water will be redirected	Recovering subcontractor		Quality of CAP water is not affected	Recovered water delivered via non-CAP infrastructure	Depends on the location of the recovery well relative to AWBA credit location	Statutory change allowing AWBA to directly distribute LTSCs for M&I firming	Recovery Well Permit	Legal character of the AWBA credit being recovered	Low	Low	No new assets to strand	Can be used by any subcontractor with adequate well capacity	Yes	None	